

IN THE DRAWINGS:

Please replace Fig. 2 with new Fig. 2 that includes the legend "PRIOR ART", as provided in the enclosed amended Figure, labeled as "Replacement Sheet." No new matter is added.

REMARKS

Claims 1-32 are pending in the application. Claims 1-2, 4-7, 10, 14-16, 19-24 and 30 are amended, and new claims 31-32 are added with this response. Examination of the claims is respectfully requested.

I. OBJECTION TO THE SPECIFICATION

The specification was objected to for various informalities. The specification and Abstract have been amended to overcome the objections. Accordingly, withdrawal of the objections is respectfully requested.

II. OBJECTION TO CLAIM 1

Claim 1 was objected to for an informality. Claim 1 has been amended to address the highlighted objection. Accordingly, withdrawal of the objection is respectfully requested.

III. REJECTION OF CLAIMS 1-2, 4-5, 15-16, 19-20 AND 24 UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-2, 4-5, 15-16, 19-20 and 24 were rejected under 35 U.S.C. § 112, second paragraph for being indefinite. The claims have been amended to address the highlighted issues in the rejection. Accordingly, withdrawal of the rejection is respectfully requested.

IV. REJECTION OF CLAIMS 1-9, 13, 15-16, 19-25 AND 28-30 UNDER 35 U.S.C. § 103(a)

Claims 1-9, 13, 15-16, 19-25 and 28-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,130,793 (Ohmori et al.). Withdrawal of the rejection is respectfully requested for at least the following reasons.

- i. ***Ohmori et al. do not teach distortion and attenuation of an analog signal by a transmission link having a cable transfer function, as recited in claim 1.***

Claim 1 is directed to a method for reconstructing data from an analog signal that has been distorted and attenuated by transmission over a transmission link that has a cable transfer function. Ohmeri et al. do not teach this feature.

Ohmeri et al. disclose a method of detecting a thermal asperity, such as a sudden thermal event, in a magnetic disc unit. As shown in Fig. 2 of Ohmeri et al., an analog signal is generated from the data residing on a magnetic disc 1 by a read head 2. (See, e.g., Col. 5, lines 7-9). The analog signal is then processed in various components in Fig. 2 to detect the thermal asperity. (See, e.g., Col. 5, lines 62-64). Since the analog signal comes from the read head 2, the analog signal has not been distorted by transmission over a transmission link that exhibits a cable transfer function, as recited in claim 1.

The above argument applies also to independent claims 15 and 23. Therefore Ohmeri et al. do not teach or suggest the invention of claims 1, 15 and 23, respectively. Accordingly, withdrawal of the rejection of the claims is respectfully requested.

- ii. ***Ohmori et al. do not teach filtering high frequency interference in the analog signal at frequencies above the symbol rate, as recited in claim 1.***

Claim 1 is directed to a method of reconstructing data that is clocked at a symbol rate. Such data is reconstructed from an analog signal, wherein the analog signal is amplified and subsequently filtered to remove high frequency interference ***at frequencies above the symbol rate.*** Ohmeri et al. do not teach this feature.

Ohmeri et al. are silent regarding details of a filtering of an analog signal. As shown in Fig. 2, an analog signal is filtered in a filter component 42, however, the reference provides no details of such filtering, except that "[t]he analog filter 42 subjects the analog signal output from the voltage controlled amplifier 41 to a partial response

waveform equalization." (Col. 5, lines 11-13). No discussion of filtering out particular frequency components is provided, and ***no discussion whatsoever of a symbol rate is discussed***. Therefore Ohmeri et al. do not teach or suggest the above feature of claim 1.

In addition, claim 15 recites a low-pass filter configured to filter high-frequency interference in the analog signal at frequencies above the symbol rate. Therefore for similar reasons, claim 15 and its respective depending claims are also non-obvious over the cited art. Accordingly, withdrawal of the rejection is respectfully requested for at least this additional reason.

iii. Ohmori et al. do not teach low-pass filtering an equalized signal, as recited in claim 1.

Claim 1 recites the formation of a digital signal from an amplified filtered analog signal. Subsequently, an equalized signal is generated by a digital filtering of the digital signal by simulation of an inverse of the cable transfer function. The equalized signal is then low-pass filtered. Ohmeri et al. do not teach this feature.

As shown in Fig. 2, an A/D converter 43 converts a filtered analog signal to a digital signal. The resultant digital signal is eventually equalized with a digital equalizer component 47, however, ***the equalized signal is not subsequently low-pass filtered, as recited in claim 1***. Rather, in Ohmeri et al. the equalized signal is provided to a decoder 51, wherein the equalized signal is converted to serial data. (See, e.g., Col. 5, lines 56-57). ***No low-pass filtering of the equalized signal is performed***. Therefore Ohmeri et al. do not teach or suggest the above feature of claim 1.

In addition, claim 15 recites a digital interpolation and filter unit that performs a low-pass filtering of the equalized signal. As highlighted above, Ohmeri et al. do not teach or suggest this feature. Therefore claims 1 and 15 and their respective depending claims are non-obvious over the cited reference. Accordingly, withdrawal of the rejection is respectfully requested for at least this additional reason.

- iv. ***Ohmori et al. do not teach formation of an equalized signal by carrying out a cable approximation on the digital signal by simulation of the inverse of the cable transfer function, as recited in claim 1.***

In claim 1, the amplified filtered analog signal is sampled to form a digital signal. The digital signal is then equalized by carrying out a cable approximation ***by simulation of the inverse of the cable transfer function on the digital signal.***

Ohmeri et al. do not teach this feature. Ohmeri et al. do teach equalization in a digital equalizer 47, but the reference states that the equalizer 47 is provided merely to finely adjust the waveform equalization. (See, e.g., Col. 5, lines 39-41). Therefore Ohmeri et al. do not teach or suggest the above feature of claim 1.

Further, claims 15 and 23 contain a similar limitation, and thus for the same reasons these claims and their respective depending claims are non-obvious over the cited art. Accordingly, withdrawal of the rejection is respectfully requested for at least this additional reason.

- v. ***Interpolating and decimating in claim 1 do not cancel one another out as alleged in the Office Action, and Ohmori et al. do not teach this feature.***

In the Office Action, it stated that interpolating and decimating are also known as upsampling and downsampling, which in general cancel each other's effect, and thus the cited art, although not teaching these features would perform equally well without use of such steps of filters. (O.A., 7/10/07, p. 8, first paragraph). Applicant respectfully disagrees.

Claim 1 recites interpolating and then low-pass filtering an equalized signal. Then the interpolated and filtered signal is decimated. Consequently, claim 1 has three acts in the following order: interpolating, filtering, decimating. Since the interpolated data is filtered prior to decimation, the data has been modified, and the result facilitates improved clocking and data recovery in a subsequent digital phase locked loop.

Consequently, the statement in the Office Action is incorrect, and the above feature, which is not taught by Ohmeri et al. further renders the claims non-obvious. Accordingly, withdrawal of the rejection is respectfully requested for at least this additional reason.

V. CONCLUSION

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, REINP140WOUS.

Respectfully submitted,
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